

## **PRESSURE SENSE GAUGE ASSEMBLY FOR ATTACHMENT TO AUTOMATIC SPARK PLUG**

### Abstract

An ignition coil, spark plug, and pressure sense assembly for an  
5 internal combustion engine are, in a preferred embodiment, integrated into a single  
assembly and mounted directly on a plug hole of an internal combustion engine. A  
pressure sense assembly is welded to a spark plug shell which serves as a pressure  
member. The pressure sense assembly includes a base plate onto which first and  
second pairs of strain gauges are printed using a thick film ink process (piezoresistive)  
10 in a full bridge arrangement. The geometry of the base plate and the fashion in which  
it is welded to the shell allow one pair of the gauges to function as strain sensing  
elements while the other pair can function for temperature compensation. Changes in  
the pressure in the combustion chamber deform the shell, causing a corresponding  
change in the bridge producing the pressure signal.

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